UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,441	02/22/2002	Shih-Jong J. Lee	SV16	9997

29738   7590   05/03/2004

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EXAMINER
HIRL, JOSEPH P

ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>02 February 2002</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-23</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☐ Claim(s) _____ is/are rejected.
7)☒ Claim(s) <u>1-23</u> is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>02 February 2002</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>2</u>.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 112

1.   Claims 1-23 are pending in this application.

2.   The claims and only the claims form the metes and bounds of the invention. "Office personnel are to give the claims their broadest reasonable interpretation in light · of the supporting disclosure. *In re Morris,* 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, l 45-48; p 2100-9, c 1, l 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

3.   Examiner's Opinion:

Para 2 above applies. The Examiner has full latitude to interpret each claim in the broadest reasonable sense.   The Examiner has an obligation to broadly interpret all claims and it in the best interest of the applicant to fully appreciate this fact. While the material in the specification maybe allowable, the claims warrant rejection. Simply stated, the claims have not brought forth the applicant's invention.

Claim Rejections - 35 USC § 101

4.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5.   Claims 1-23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of the claim raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101.

Claim Rejections - 35 USC § 112

6.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7.   Claims 1-23 are rejected under 35 USC 112, first paragraph because current case law (and accordingly, the MPEP) require such a rejection if a 101 rejection is given because when Applicant has not in fact disclosed the practical application for the invention, as a matter of law there is no way Applicant could have disclosed how to practice the undisclosed practical application. This is how the MPEP puts it:

("The how to use prong of section 112 **incorporates as a matter of law** the requirement of 35U.S.C. 101 that the specification disclose as a matter of fact a practical utility for the invention.... If the application fails as a matter of fact to satisfy 35 U.S.C. 101, then the application **also fails as a matter of law** to enable one of ordinary skill in the art to use the invention under 35 U.S.C. § 112."); In re Kirk, '376 F.2d 936, 942, 153 USIPQ 48, 53 (CCPA 1967) ("Necessarily, compliance with § 112 requires a description of how to use presently useful inventions, **otherwise an applicant would anomalously be required to teach how to use a useless invention.**"). See, MPEP 21107.01 (IV), quoting In re Kirk (emphasis added).

Therefore, claims 1-23 are rejected on this basis.

8.   Claim 23 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: To achieve step (e), it is necessary to iterate the process. Such iteration is not identified.

Claim Rejections - 35 USC § 102

9.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10.   Claims 1-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Guyon et al (U.S. Pub. 2003/0172043, referred to as Guyon).

Claim 1

Guyon anticipates (a) Input a decision tree (**Guyon**, Figs. 1 and 9; p 0077;

Examiner's Note (EN): para 2 above applies; the tree is inherent in the problem

formulation from which Fig. 9 develops); (b) Input a set of training samples (**Guyon**,

Figs. 1; EN: item 103); (c) Use the training samples to determine a decision

characteristic for at least one decision tree node, said decision characteristic selected

from the group consisting of global characteristics and population characteristics

(**Guyon**, Fig. 9; EN: the global and population characteristics are axiomatic to the input

data structure).

Claim 2

Guyon anticipates decision characteristic compensates for unequal class

prevalence in the training samples (**Guyon**, p 0079).

Claim 3

Guyon anticipates decision characteristic compensates for errors in the training

data (**Guyon**, p 0031).

Claim 4

Guyon anticipates the global characteristics include global counts (**Guyon**, p

0185; EN: predictive statistics would include global counts).

Claim 5

Guyon anticipates the global characteristics include global population statistic

(**Guyon**, p 0185).

Claim 6

Guyon anticipates population characteristics include local population statistic

(**Guyon**, p 0193; EN: local population statistics relate to for every gene selected, there

are only two alternatives).

Claim 7

Guyon anticipates (a) Input a decision tree (**Guyon**, Figs. 1 and 9; p 0077;

Examiner's Note (EN): para 2 above applies; the tree is inherent in the problem

formulation from which Fig. 9 develops); (b) Input a plurality of decision characteristics

selected from the group consisting of global characteristics and population

characteristics from at least one terminal node of the decision tree (**Guyon**, p 0194: EN:

such characteristics will be along the path to the leaf node); (c) Determine the

confidence value for each of the plurality of said decision characteristics (**Guyon**, p

0207); (d) Determine an integrated confidence value for each class of said at least one

terminal node (**Guyon**, p 0207).

Claim 8

Guyon anticipates assigning the class with the maximum integrated confidence

value as the decision for the terminal node (**Guyon**, p 0088).

Claim 9

Guyon anticipates the integrated confidence value as the likelihood value

(**Guyon**, p 0067) .

Claim 10

Guyon anticipates the global characteristics and population characteristics are

selected from the group consisting of global counts, local counts, global population

statistic, and local population statistic (**Guyon**, Figs. 1; EN: synonymous to input data).

Claim 11

Guyon anticipates the confidence value is selected from the set consisting of

local count confidence, local population confidence, global count confidence and global

population confidence (**Guyon**, p 0207).

Claim 12

Guyon anticipates the integrated confidence value is a weighted combination of a

plurality of confidence values (**Guyon**, p 0364).

Claim 13

Guyon anticipates the global characteristics have a global context coverage that

is adjusted using different layer depths (**Guyon**, p 0364; EN: global context coverage is

simply what applies and what does not apply).

Claim 14

Guyon anticipates the global characteristics have a global context coverage that

is adjusted on a minimum number of training samples (**Guyon**, p 0082; EN: it is

axiomatic that coverage of the model is only as good as the training data base).

Claim 15

Guyon anticipates (a) Input a decision tree (**Guyon**, Figs. 1 and 9; p 0077;

Examiner's Note (EN): para 2 above applies; the tree is inherent in the problem

formulation from which Fig. 9 develops); (b) Input a set of training samples (**Guyon**,

Figs. 1; EN: item 103); (c) Generate a regulated measure selected from the group

consisting of integrated confidence values and reliability measures (**Guyon**, p 0207) ;

(d) For a non-terminal node of the tree having two descending terminal nodes,

determine the accuracy values using the regulated measure under two separate nodes

or combined node conditions (**Guyon**, p 0191); (e) If combined node accuracy value is

greater than the two separate node accuracy value, prune the terminal nodes by

combing the two terminal nodes and convert the associated non-terminal nodes into

one terminal node (**Guyon**, p 0128).

Claim 16

Guyon anticipates wherein the reliability measures include a local population

reliability measure (**Guyon**, p 0207; EN: confidence and reliability are synonymous; all

(local) examples of the training data were tested).

Claim 17

Guyon anticipates reliability measures include a count reliability measure

(**Guyon**, p 0207; EN: confidence and reliability are synonymous; all examples of the

training data were tested).

Claim 18

Guyon anticipates the reliability measures include a population reliability

measure (**Guyon**, p 0207; EN: confidence and reliability are synonymous; all examples

of the training data were tested).

Claim 19

Guyon anticipates the reliability measures include a combined reliability measure (**Guyon**, p 0207; EN: confidence and reliability are synonymous; the leave–one-out is a combined reliability metric).

Claim 20

Guyon anticipates the reliability measures include a global population reliability measure (**Guyon**, p 0207; EN: confidence and reliability are synonymous; the leave–one-out is a global reliability metric).

Claim 21

Guyon anticipates the reliability measures include a combined reliability measure (**Guyon**, p 0207; EN: confidence and reliability are synonymous; the leave–one-out is a combined reliability metric since it effects multiple levels of processing).

Claim 22

Guyon anticipates the reliability measure for the maximum class is integrated with the classification accuracy as the criteria for tree pruning (**Guyon**, ps 0207; 0128; EN: follows from better classification performance).

Claim 23

Guyon anticipates (a) Input a set of training samples (**Guyon**, Figs. 1; EN: item 103); (b) For at least one node, generate a set of candidate thresholds (**Guyon**, p 0082); (c) Partition data at a candidate threshold (**Guyon**, p 0082); (d) Calculate an evaluation function selected from the set consisting of integrated confidence value and reliability measures (**Guyon**, p 0082; 0207; EN: confidence and reliability values are

synonymous with range categorization; "and" should be "or"); (e) Select the partition for

the node as the one that maximizes the evaluation function (**Guyon**, p 0082; EN: one is

finished ...select the partition... when the training output is within a predetermined error

threshold).

Conclusion

11.   The prior art of record and not relied upon is considered pertinent to applicant's

disclosure.

- Lapointe et al, U.S. Patent 6,678,669

- Lapointe et al, U.S. Pub 2001/0023419

- Burk, U.S. Pub 2003/0074250

12.   Claims 1-23 are rejected.

Correspondence Information
Any inquiry concerning this information or related to the subject disclosure

should be directed to the Examiner, Joseph P. Hirl, whose telephone number is

(703) 305-1668. The Examiner can be reached on Monday – Thursday from

6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the

Examiner's supervisor, Anthony Knight can be reached at (703) 308-3179.

Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks,

Washington, D. C. 20231;

or faxed to:

(703) 746-7239 (for formal communications intended for entry);

or faxed to:

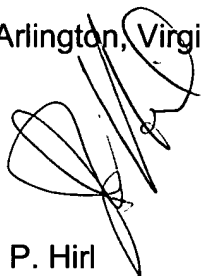(703) 746-7290 (for informal or draft communications with notation of

"Proposed" or "Draft" for the desk of the Examiner).

Hand-delivered responses should be brought to:

Receptionist, Crystal Park II

2121 Crystal Drive,

Arlington, Virginia.

Joseph P. Hirl

April 28, 2004